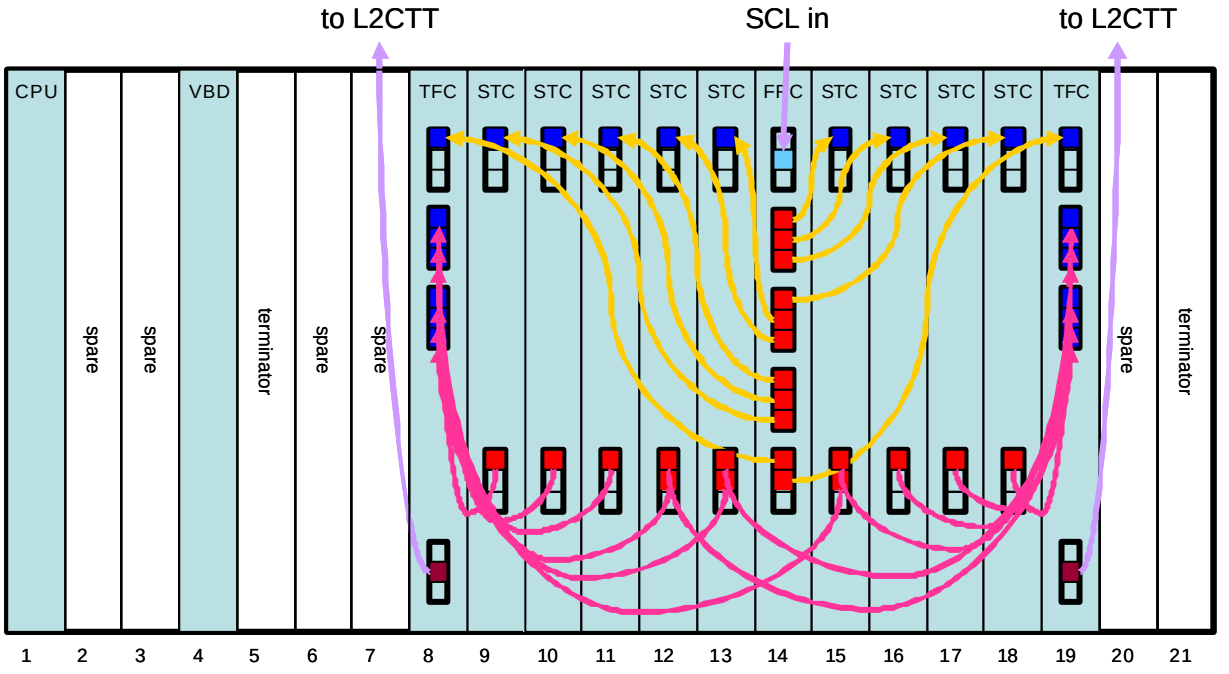
Silicon Track Trigger

- overview
  - Run 2A STT in production now
  - additional boards are required for Run 2B
    - existing designs (except for one board)
    - second production run using the same vendors
  - fiberoptic hardware for additional channels
    - VTMs, splitters, fibers
  - firmware and software modifications
  - crates, racks, power supplies do not require modification

Silicon Track Trigger

- run 2A STT
  - inputs: 432 axial silicon strip detectors
  - 6 VME crates – each covering 2£30º in f

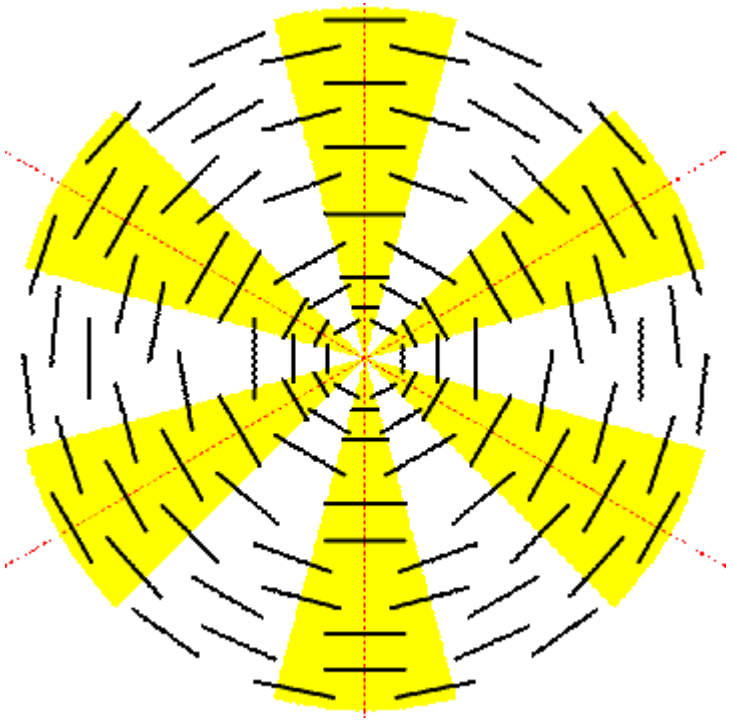
1 FRC
9 STCs
2 TFCs
per crate



Silicon Track Trigger

- **run 2B SMT**

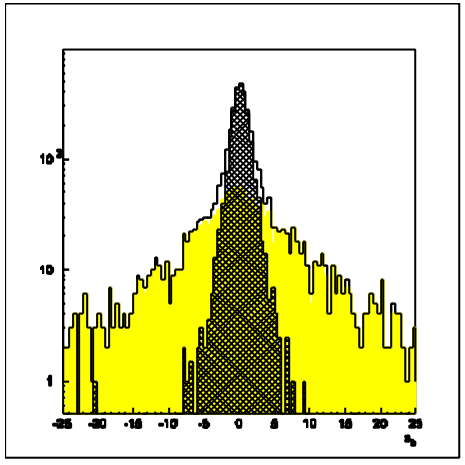
layer	Readout units		
	f	z	total
0	12	12	144
1	12	6	72
2	12	4	48
3	18	4	72
4	24	4	96
5	30	4	120



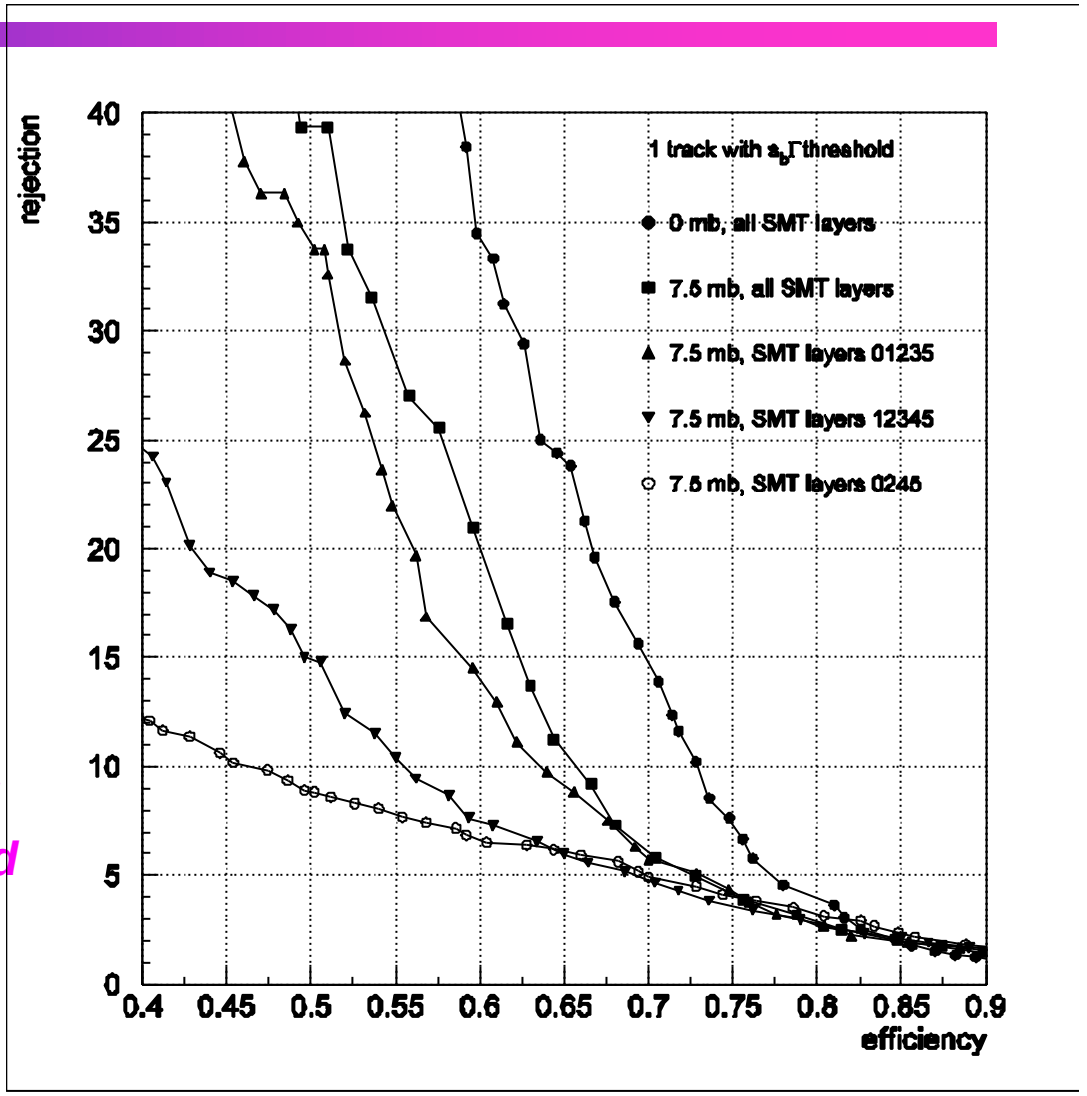
Run 2A	432	9 STCs/crate
Run 2B	552	12 STCs/crate
w/o layer 4	456	10 STCs/crate

Silicon Track Trigger

- **run 2B simulations**

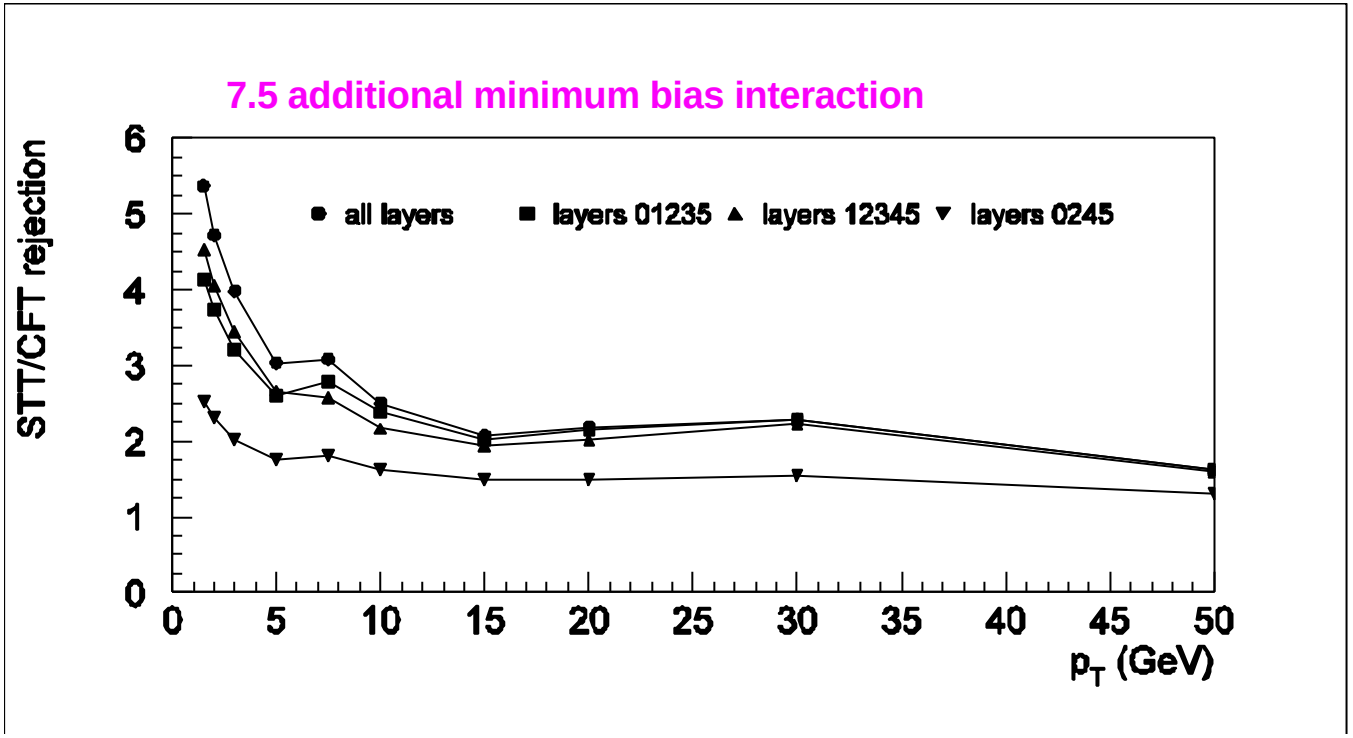


rejection of events with light quark jets (Z→qq) versus efficiency for WH(→bb) events if one STT track with s_b > threshold is required



Silicon Track Trigger

- **run 2B simulations**

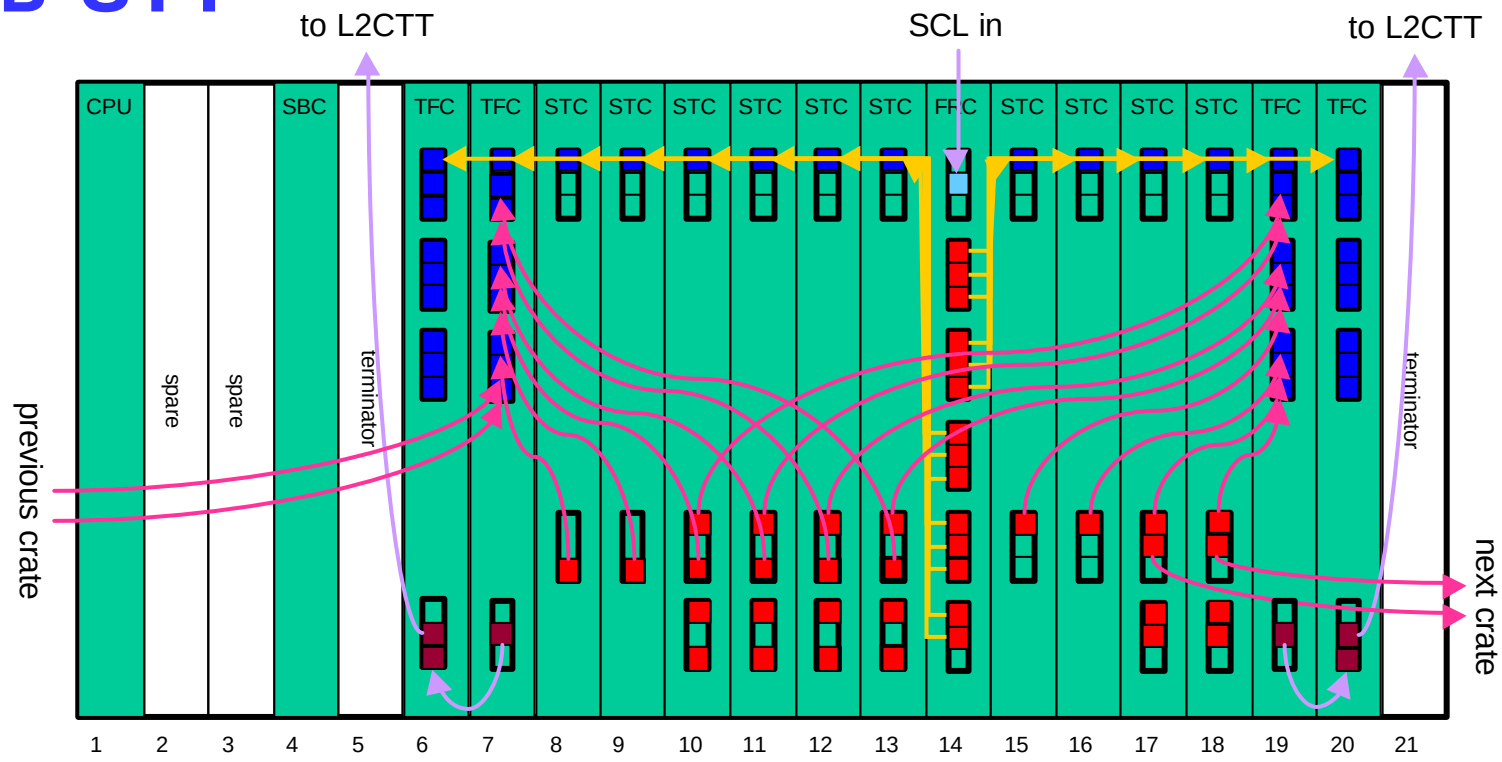


rejection of fake CFT tracks when a matching STT track with p_T > 10 GeV and at most one missing layer is required

Silicon Track Trigger

- run 2B STT

1 FRC
10 STCs
4 TFCs
per crate



Silicon Track Trigger

- cost

Component	quantity	M&S cost	contingency
Motherboard	20	$38.9k	$10.3k
BC	20	$21.4k	$5.8k
STC	7	$22.7k	$5.9k
VTM	10	$23.5k	$11.8k
LTB	52	$10.7k	$2.9k
LRB	46	$13.2k	$3.5k
TFC	8	$42.4k	$11.6k
hotlink repeaters	15	$13.1k	$6.6k
Cables	125	$1.0k	$0.3k
Splitters	26	$3.3k	$1.6k
Fibers	52	$1.3k	$0.7k
Engineering		$38.4k	$38.4k
Total		**$229.8k**	**$99.4k**

Silicon Track Trigger

- schedule
  - April 2003: Begin ordering parts.
    - do this early to minimize the danger of components becoming obsolete.
  - August 2004: Hardware production starts.
  - December 2004: Hardware production completed.
  - May 2005: Shutdown - Installation begins.
  - June 2005: Technical commissioning begins.
  - September 2005: ready for beam.

Silicon Track Trigger

- high risk items
  - firmware updates
    - firmware on STC and possibly other cards will have to be updated to account for any changes in the input and/or algorithms.
    - firmware updates may also be required if redesign is required because parts have become obsolete.
    - ➔large contingency (100%)
  - VTMs
    - 850 nm optical transmission components are about to become obsolete.
    - ➔order extra spares
    - ➔order as soon as possible